

CLAIMS:

1. An electronic device comprising a microelectromechanical system (MEMS) element (10), the element comprising first (30) and second (20) electrodes and an intermediate beam (220) with first and second opposing conductive side faces, the first side face (260) facing the first electrode (30) and the second side face (280) facing the second electrode (20), which beam (220) is movable by application of a driving voltage between said first (30) and second (20) electrodes, characterized in that:
 - the second electrode (20) and the second conductive side face (280) of the beam (220) form with an intermediate dielectric a first switchable capacitor (C1) that is connected in a signal path between an input and an output, and
 - the first electrode (30) and the first side face (260) of the beam (220) form with an intermediate dielectric a second switchable capacitor (C2), that is coupled from the signal path to ground.
2. An electronic device as claimed in claim 1, wherein the beam (220) is embodied as a third electrode.
3. An electronic device as claimed in claim 1 or 2, wherein the first electrode (30) has a surface area that is larger than that of the second electrode (20).
4. An electronic device as claimed in claim 3, wherein the second electrode (20) is subdivided into individual segments.
5. An electronic device as claimed in claim 1 or 2, wherein the electrodes (20,30,220) are present in planes substantially parallel to a substrate (14).
6. An electronic device as claimed in claim 5, wherein the second electrode (20) is present between the beam (220) and the substrate (14) and the first electrode (30) is embodied in a layer with a spring constant that is substantially larger than the spring constant of the beam (220).

7. An electronic device as claimed in claim 1, wherein the conductive side faces (260, 280) of the beam (220) are connected to the input and the first electrode (30) functions as the output.

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8. An electronic device as claimed in claim 2, wherein the third electrode (220) is provided with an electrically insulating layer (240) at both the first and the second side faces (260, 280).

10 9. An electronic device comprising a microelectromechanical systems (MEMS) element (10) provided on a substrate (14), comprising first (30) and second (20) electrodes, which electrodes (20,30) are provided in planes that are substantially parallel to the substrate (14), an intermediate beam (220) being provided between said first (30) and second (20) electrodes, said intermediate beam (220) having first and second opposing conductive side faces (260, 280), the first side face (260) facing the first electrode (30) and the second side face (280) facing the second electrode (20), which beam (220) is movable by application of a driving voltage between said first (30) and second (20) electrodes; characterized in that the first and second conductive side faces (260, 280) are part of the same electrically conductive layer being a third electrode (220).

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10. An electronic device as claimed in claim 9, wherein the second electrode (20) is present between the third electrode (220) and the substrate (14) and the first electrode (30) is embodied in a layer with a spring constant that is substantially larger than the spring constant of the third electrode (220).

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11. An electronic device as claimed in claim 9 or 10, wherein the second electrode (20) is provided with a surface area that is smaller than that of the first electrode (30).

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12. An electronic device as claimed in claim 11, wherein the second electrode (20) is subdivided into individual segments.

13. An electronic device as claimed in Claim 2 or 9, wherein the third electrode (220) is substantially elastic, such as to be attachable with a first surface area at one edge to the second electrode (20) and with a second surface area at an opposite edge to the first

electrode (30), and such that on application of an actuation voltage the ratio of first to second surface area is changeable.

14. An electronic device as claimed in claim 6 or 10, wherein the first electrode
5 (30) is defined in a layer in which also an inductor is defined.

15. An electronic device as claimed in claim 2 or 9, wherein the first (30) and the third (220) electrodes are defined in layers, in which also the electrodes of a thin film capacitor are defined.

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16. An electronic device as claimed in claim 6 or 10, characterized in that the first electrode (30) is constructed as a bridge with supporting spacers on the substrate (14).

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17. An electronic device as claimed in Claim 6 or 10, wherein the first electrode (30) is part of a membrane- or bridge-like construction that is supported on the substrate (14) with a number of beams laterally connected to said construction, therewith including a spring-like functionality that allows controlled displacement of the first electrode (30) in directions substantially perpendicular to the substrate (14).

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18. An electronic device as claimed in claim 1 or 9, wherein the MEMS element (10) is part of an impedance matching network.

19. A front end module provided with a power amplifier and an electronic device (10) according to any of the preceding claims.

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20. Use of the electronic device according to any one of claims 1 to 18, for RF applications, wherein the beam (220) is driven by a driving voltage towards or from the first electrode (30).

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21. A method of driving an electronic device as claimed in any of the claims 1 to 18 by application of an actuation voltage.